

EVALUATION REPORT

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|---------------|---------------------------|
| Company | <u>Target Corporation</u> |
| Application # | <u>5852</u> |
| Plant # | <u>14693</u> |

1. Background:

Target Corporation has applied for an Authority to Construct and/or Permit to Operate a natural gas fired emergency generator at their facility.

2. Emission Calculations:

Based on the manufacturer's specifications for the generator, the following emissions are estimated. The PM10 emission factor was derived from a September 2001 ARB report for fossil-fuel fired reciprocating engines. The SO2 emission factor was derived from AP-42 (from the combustion of natural gas).

NOx Emissions

Basis: NOx = 0.85 gm/bhp-hr

NOx = 0.85 gm/bhp-hr(57 HP)(100 hr/yr)(lb/454 gm)

NOx = 10.67 lb/yr = 0.005 TPY

CO Emissions

Basis: CO = 1.38 gm/bhp-hr

CO = 1.38 gm/bhp-hr(57 HP)(100 hr/yr)(lb/454 gm)

CO = 17.33 lb/yr = 0.009 TPY

POC Emissions

Basis: 0.49 gm/bhp-hr

POC = 0.49 gm/bhp-hr(57 HP)(100 hr/yr)(lb/454 gm)

POC = 6.15 lb/yr = 0.003 TPY

SO₂ Emissions

Basis: 0.0023 gm/bhp-hr

SO₂ = 0.0023gm/bhp-hr(57 HP)(100 hr/yr)(lb/454 gm)

SO₂ = 0.29 lbs/yr = 0.00001 TPY

PM₁₀ Emissions

Basis: 0.02 gm/bhp-hr

PM₁₀ = 0.02 gm/bhp-hr(57 HP)(100 hr/yr)(lb/454 gm)

PM₁₀ = 0.25 lb/yr = 0.0001 TPY

Concentration = 0.02 gm/bhp-hr(57 HP)(lb/454 gm)(7000 gr/lb)
265 dscf/min(60 min/hr)

Concentration = 0.001 gr/dscf

TOXICS

To estimate the worst-case toxic emissions from the combustion of natural gas in the engine (S-1), the highest CATEF emission factors for gas engines were used. The following are the worst-case toxic emissions estimated from the engine (S-1):

MMBTU/hr = 0.588
MMscf/hr = 0.000588 # Hours Op = 100

| Contaminant | Emission Factor (lb/MMscf) | lb/yr | Toxics Trigger (lb/yr) |
|------------------------|-------------------------------|----------|------------------------|
| Acetaldehyde | 5.29E-01 | 3.11E-02 | 7.20E+01 |
| Acrolein | 5.90E-02 | 3.47E-03 | 3.90E+00 |
| Benzene | 2.18E-01 | 1.28E-02 | 6.70E+00 |
| 1,3-Butadiene | 3.67E-01 | 2.16E-02 | 1.10E+00 |
| Ethylbenzene | 7.11E-02 | 4.18E-03 | 1.90E+05 |
| Formaldehyde | 4.71E+00 | 2.77E-01 | 3.30E+01 |
| Naphthalene | 2.51E-02 | 1.48E-03 | 2.72E+02 |
| Benz(a)anthracene | 5.88E-05 | 3.46E-06 | 4.40E-02 |
| Benzo(b)fluoranthene | 4.09E-05 | 2.40E-06 | 4.40E-02 |
| Benzo(k)fluoroanthene | 7.83E-06 | 4.60E-07 | 4.40E-02 |
| Benzo(a)pyrene | 2.70E-06 | 1.59E-07 | 4.40E-02 |
| Chrysene | 1.43E-05 | 8.41E-07 | 4.40E-02 |
| Dibenz(a,h)anthracene | 2.70E-06 | 1.59E-07 | 4.40E-02 |
| Indeno(1,2,3-cd)pyrene | 7.17E-06 | 4.22E-07 | 4.40E-02 |
| Toluene | 2.39E-01 | 1.41E-02 | 3.90E+04 |
| Xylene | 6.46E-01 | 3.80E-02 | 5.80E+04 |

Because the estimated toxics emissions do not exceed any risk screening trigger level, an air toxics risk screening is not required. However, because the facility was located within 1000 feet of a school, a risk screening was performed to provide more information for the public notice. Results from the risk screen indicate that the maximum cancer risk is estimated to be 0.02 in a million, which is acceptable in accordance with the District's Risk Management Policy.

3. Statement of Compliance:

Regulation 6

The engine (S-1) is subject to the requirements of Regulation 6 (Particulate Emissions). The engine (S-1) is expected to comply with the requirements of Regulation 6, because it will be fueled with natural gas. Thus, no visible emission from the exhaust stack is anticipated to exceed 20% opacity (No. 1 Ringelmann) for any period aggregating to three minutes in any one hour. In addition, the particulate emission concentrations are not expected to exceed 0.15 grains per dry standard cubic foot.

Regulation 9-8

The engine (S-1) is subject to the requirements of Regulation 9, Rule 8 (Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines). The engine (S-1) is expected to comply with the requirements of Regulation 9-8, because it will be required

(by permit condition) to operate only 100 hours per year for reliability related activities and unlimited for emergency backup power.

BACT/TBACT

Because the emissions from the source are not estimated to exceed 10 pounds during any worst-case day (24 hours of operation), Best Available Control Technology review is not triggered.

Offsets

Because NOx and POC emissions from the proposed engine (S-1) are each estimated to not exceed 15 tons per year per pollutant, NOx and POC offsets are not required from this new facility.

Public Notice

Because the proposed generator is going to be within 1000 feet of **Ben Painter Elementary School** (500 Rough and Ready Rd, San Jose, CA 95133) and **William Sheppard Middle School** (480 Rough and Ready Rd, San Jose, CA 95133), a public notice is triggered, per Regulation 2-1-412.

CEQA

Because this application is ministerial (permit handbook chapter 2.3), it is not subject to the requirements of the California environmental quality act.

4. Conditions

I recommend the following conditions for S-1:

1. The owner/operator shall only fire the engine with either natural gas or liquid petroleum gas (i.e., propane gas). [basis: Regulation 6]
- 2a. The owner/operator shall operate S-1 for no more than 100 hours in any consecutive 12-month period for the purpose of reliability testing or in anticipation of imminent emergency conditions. Emergency conditions are failure of a regular power supply. [basis: Regulation 9-8-330.2]
- 2b. The owner/operator may operate S-1 for an unlimited amount of time for the purpose of providing emergency standby power during emergency conditions (as defined in Part 2a). [basis: Regulation 9-8-330.1]
- 3a. The owner/operator shall equip S-1 with a non-resettable totalizing counter, which records hours of operation for each engine. [basis: Regulation 9-8-530]
- 3b. The owner/operator shall maintain the following monthly records in a District-approved log for at least 2 years and shall be made available to the District upon request:
 - 1) total hours of operation for S-1
 - 2) hours of operation under emergency conditions for S-1 and a description of the nature of the emergency condition
 - 3) fuel usage at S-1[basis: Regulation 9-8-530]

4. The owner/operator shall operate S-1 to not exceed the following emission rates when tested at 100% load:

| | |
|------------------------------|----------------|
| a. Nitrogen Oxides (NOx) | 0.85 gm/bhp-hr |
| b. Carbon Monoxide (CO) | 1.38 gm/bhp-hr |
| c. Hydrocarbons (POC) | 0.49 gm/bhp-hr |
| [basis: Cumulative Increase] | |

5. Authority to Construct:

I recommend that an Authority to Construct be issued to Target Corporation for the following:

S-1 Natural Gas Fired Engine Generator (57 HP), Onan 35GGFD, Model Ford ESG-642, 587,650 BTU/hr

6. Exemptions:

None.

12/80-ER1

By M.K. Carol Lee
Senior Air Quality Engineer

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